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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/791,506	03/02/2004	Rajan V. Rao	PB 04 0001 (SPLG 4)	2780
38790	7590	08/23/2007	EXAMINER	
THE SMALL PATENT LAW GROUP LLP 611 OLIVE STREET, SUITE 1611 ST. LOUIS, MO 63101			BOKHARI, SYED M	
ART UNIT		PAPER NUMBER		
2609				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/791,506	RAO ET AL.	
	Examiner	Art Unit	
	Syed Bokhari	2609	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 02 March 2004.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-5, 7, 10, 13-19, 21, and 25-26 is/are rejected.
- 7) Claim(s) 6,8,9,11,12,20 and 22-24 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)
 Paper No(s)/Mail Date See Continuation Sheet.
- 4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date. _____
- 5) Notice of Informal Patent Application
- 6) Other: _____

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :06/08/2007, 07/08/2005 and 03/02/2004.

DETAILED ACTION

Specification

1. The abstract of the disclosure is objected to because it exceeds the 150 words in length. Correction is required. See MPEP § 608.01(b).
2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Claim Objections

3. Claims 5, 22, 23 and 24 are objected to under 37 CFR 1.75(c) because of the following informalities:

For claim 5 line 2, the occurrence of "a 1+1 protection scheme" refers back to "a 1+1 protection scheme" previously cited in line 2 of claim 3, if it is true, it is suggested to applicant to change "a 1+1 protection scheme" to --the 1+1 protection scheme--.

For claim 22 line 2, the occurrence of "a defect" should be changed to

--the defect--.

For claim 23 line 2, the occurrence of "a defect" should be changed to

--the defect--.

For claim 24 line 1, the occurrence of "an intra-leg protection scheme"

should be changed to --the intra-leg protection scheme--.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-3, 7, 13, 15-16, 18-19, 21 and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Anderson et al. (USP 5,838,924).

For claim 1, Anderson et al. discloses a sub-network connection system, comprising: line modules configured to receive bridged traffic signals over individual corresponding channels (see column 1 lines 45-55 in Summary of the Invention); the line modules being grouped into sets at a lower protection layer (see column 1 lines 45-51 in Summary of the Invention); the sets of line modules being organized into working legs and protection legs at an upper protection layer (see Abstract lines 1-12); wherein the line modules are activated/deactivated based on different upper and lower protection schemes associated with the upper and lower protection layers

(see column 4 lines 50-67 and column 5 lines 1-12 Detailed Description); state maps associated with each of the line modules, the state maps storing state data that activates and deactivates the line modules (see column 9 lines 6-41 in Detailed Description); the state maps being updated in accordance with the lower protection scheme to perform intra-leg switching between the line modules in one of the working and protection legs (see column 2 lines 9-18 in Summary of the Invention); the state map being updated in accordance with the upper protection scheme to perform inter-leg switching between a first line module in one of the working and protection legs and a second line module in another of the working and protection legs (see column 1 lines 45-64 in Summary of the Invention); a network control module interconnected with the line modules (see column 8 lines 60-67 and column 9 lines 1-5 in Detailed Description) and the network control module performing inter-leg switching by updating the state data in the state maps for corresponding line modules in associated working and protection legs (see column 5 lines 36-54 in Detailed Description).

For claim 2, Anderson et al. discloses wherein the line modules constitute I/O boards and the network control module performs a switch operation between a working I/O board in the working leg and a working I/O board in the protection leg when a defect is experienced in the traffic signal (see column 4 lines 63-67 and column 5 lines 1-12 in Detailed Description).

For claim 3, Anderson et al. discloses wherein the lower and upper protection schemes constitute a 1+1 protection scheme and a sub-network connection protection scheme (see column 1 lines 55-59 in Summary of the Invention).

For claim 7, Anderson et al. discloses further comprising a single cell switch fabric containing the network control module (see column 10 lines 5-12 in Detailed Description).

For claim 13, Anderson et al. discloses wherein the line modules constitute a non-SONET/mixed mode combination (see column 9 lines 6-14 in Detailed Description).

For claim 15, Anderson et al. discloses a method for protection switching in a sub-network connection, comprising (see column 11 lines 5-12 in Detailed Description); receiving traffic signals at line modules that are grouped into sets (see column 1 lines 45-51 in Summary of the Invention); where the sets of line modules are organized into working legs and protection legs (see Abstract lines 1-12); storing state data in state maps associated with each of the line modules (see column 9 lines 6-41 in Detailed Description); inter-leg switching between a first line module in one of the working and protection legs and a second line module in

another of the working and protection legs by updating the state maps in accordance with an inter-leg protection scheme (see column 1 lines 45-64 in Summary of the Invention) and activating and deactivating the line modules based on updates to the state maps (see column 4 lines 50-67 and column 5 lines 1-12 in Detailed Description).

For claim 16, Anderson discloses further comprising intra-leg switching between the line modules in one of the working and protection legs by updating the state maps in accordance with an intra-leg protection scheme (see column 4 lines 63-67 and column 5 lines 1-12 in Detailed Description).

For claim 18, Anderson discloses wherein the inter-leg protection scheme is SNC protection (see column 1 lines 55-59 in Summary of the Invention).

For claim 19, Anderson discloses wherein the state maps are stored in memory on corresponding line modules (see column 9 lines 6-41 in Detailed Description).

For claim 21, Anderson et al. discloses further comprising monitoring the traffic signals for defects and performing the inter-leg switching when a defect is detected (see column 5 lines 36-54 in Detailed Description).

For claim 25, Anderson et al. discloses wherein the line modules constitute a non-SONET/mixed mode combination (see column 9 lines 6-14 in Detailed Description).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary.

Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of

35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 4, 10, 14, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson et al. (USP 5,838,924) in view of DeBoer et al. (US 2004/0208118 A1).

Anderson et al. teaches all the limitations of the claim as described in paragraph 4 of this office action but fails to disclose:

- Wherein the upper and lower protection schemes constitute a 1:N equipment protection scheme as recited in claim 4.
- Wherein the state maps are stored on one of the network control module and corresponding the line modules as recited in claim 10.
- Wherein a first line module operates in a VT mode and a second line module operates in a DS1 mode as recited in claim 14.
- Wherein a first line module operates in a VT mode and a second line module operates in a DS1 mode as recited in claim 26.

DeBoer et al. from the same and similar field of endeavor teaches above limitations:

For claim 4, wherein the upper and lower protection schemes constitute a 1:N equipment protection scheme (see paragraph 0013 lines 1-6 on page 2 in Summary of the Invention).

For claim 10, wherein the state maps are stored on one of the network control module and corresponding the line modules (see paragraph 0012 lines 10-16 on page 2 in Summary of the Invention).

For claim 14, wherein a first line module operates in a VT mode (see paragraph 0036 lines 16-24 on page 5 in Description of the Preferred Embodiments) and a second line module operates in a DS1 mode (see paragraph 0031 lines 5-9 on page 4 in Description of the Preferred Embodiments).

For claim 26, wherein a first line module operates in a VT mode (see paragraph 0036 lines 16-24 on page 5 in Description of the Preferred Embodiments) and a second line module operates in a DS1 mode (see paragraph 0031 lines 5-9 on page 4 in Description of the Preferred Embodiments).

It would have been obvious to one of ordinary skill in the art at the same time of invention was made to use the 1:N protection scheme along with M:N protection scheme, storing and updating of paths information at the controller and corresponding node, and to operate the first node in VT mode and second node in DS1 mode as taught by DeBoer et al. in the ATM connection protection system. The 1:N protection scheme providing one protection link to N working link, updating of data tables in the controller and corresponding node and to operate first node and second

nodes in VT and DS1 mode respectively as taught by DeBoer et al. can be modified/implemented in the ATM connection switching system of Anderson et al. by enhancing the M:N protection scheme to accommodate 1:N scheme and the O/E converter on receiving side of the line terminal providing the optical-to-electrical conversion for VT mode whereas the DS1 connection to second node needs no conversion and will be coupled directly. The 1:N protection scheme can be generalized into a M:N scheme, where there are N working links and M protection links. Thus, if a failure affects more than M working links in a protection group, only M of them can be protected even if there are free protection links in other groups. The O/E (optical-to-electrical) converter are needed to interface the line terminal with the SONET. The motivation of adapting the 1:N protection scheme and O/E converter to increase the flexibility, applications and the scope of the ATM connection protection switching system.

10. Claims 5 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson et al. (USP 5,838,924) in view of DeBoer et al. (US 2004/0208118 A1) as applied to claims 1 and 16 above, and further in view of Magill et al. (USP 6,606,297 B1).

Anderson et al. and DeBoer et al. disclose all limitations of the claim as described in paragraph 8 of this office action but fail to teach:

- A UPSR protection scheme as recited in claim 5 and claim 17.

For claim 5 and 17, Magill et al. in the same or similar field of endeavor teaches a UPSR protection scheme (see paragraph 1 lines 45-48 in Background of the Invention).

It would have been obvious to one of ordinary skill in the art at the time of invention was made to use UPSR (unidirectional path switched ring) protection scheme as taught by Magill et al. in the ATM connection protection switching system of Anderson et al. UPSR protection scheme can be modified/implemented in the connection protection switching system of Anderson et al. by enhancing the protection schemes to cover UPSR protection too. The UPSR-protected path setup in mixed mesh-ring networks is an important requirement in the IP-based control of time-division multiplexing (TDM) optical transport networks. The motivation for adding the UPSR protection in the existing schemes is to utilized the in-built protection capabilities of synchronous optical network (SONET) unidirectional path-switched rings (UPSRs).

Allowable Subject Matter

11. Claims 6, 8-9, 11-12, 20, 22-24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 2003/0206516 A1(Chen et al.), USP 6,810,011 B1 (Betts), US 2005/0089027 A1 (Colton) and USP 6,775,228 B1 (Solana De Quesada).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Syed Bokhari whose telephone number is (571) 270-3115. The examiner can normally be reached on Monday through Friday from 7:30 AM to 5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dang Ton can be reached on (571) 272-3171. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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SUPERVISORY PATENT EXAMINER